R E P O R T R E S U M E S

ED 015 893 SP 001 414

EQUALITY OF EDUCATIONAL OPPORTUNITY, RECONSIDERED.

BY- COLEMAN, JAMES S.
JOHNS HOPKINS UNIV., BALTIMORE, MD.

PUB DATE 67

EDRS PRICE MF-$0.25 HC-$0.84 19P.

DESCRIPTORS- CULTURAL DISADVANTAGEMENT, DISADVANTAGED ENVIRONMENT, *EARLY EXPERIENCE, *EDUCATIONAL BACKGROUND, EDUCATIONAL EXPERIENCE, *EDUCATIONAL OPPORTUNITIES, EDUCATIONAL RESOURCES, *EQUAL EDUCATION, EQUAL FACILITIES, *LEARNING READINESS, LIMITED EXPERIENCE, MINORITY GROUPS, STATISTICAL ANALYSIS, STATISTICAL SURVEYS, TABLES (DATA)

THIS STUDY POSES THE QUESTION OF HOW TO MEASURE THE DEGREE OF INEQUALITY OF EDUCATIONAL OPPORTUNITY FOR SUBGROUPS IN SOCIETY. IT EXAMINES AND REJECTS THE DOMINANT IDEA THAT EQUAL EDUCATIONAL OPPORTUNITY IS PROVIDED BY A COMMUNITY THROUGH THE PROVISION OF FACILITIES WITH FREE AND OPEN ACCESS FOR ALL, SUBSTITUTING THE IDEA THAT IT IS THE INTENSITY WITH WHICH A SCHOOL'S RESOURCES ARE EMPLOYED IN RELATION TO THE INTENSITY OF USE OF OUTSIDE EDUCATIONAL RESOURCES (I.E., PARTICULARLY THE FAMILY) WHICH LEADS TO EQUAL OPPORTUNITIES. IT RECOGNIZES THAT BEFORE ATTENDING SCHOOL, CHILDREN HAVE VERY UNEQUAL LEARNING EXPERIENCES, WHICH MUST BE BALANCED BY MAKING SCHOOL EDUCATION MORE POWERFUL FOR THE MORE POORLY PREPARED GROUP. MEASUREMENT OF EQUALITY OF OPPORTUNITY WOULD BE ACCOMPLISHED BY (1) MEASURING THE LIST OF RESOURCES THAT MIGHT BE EFFECTIVE FOR ACHIEVEMENT FOR EACH POPULATION GROUP, (2) THROUGH REGRESSION ANALYSIS, ESTIMATING THE EFFECTIVENESS OF EACH OF THESE RESOURCES FOR A GIVEN GROUP WHICH EXPERIENCED FEWER RESOURCES THAN A GIVEN BASELINE GROUP, SUCH AS WHITES IN THE SAME REGION, AND (3) USING THESE MEASURES OF EFFECTIVENESS AND THE REGRESSION WEIGHTS FOR THE DIFFERENT SCHOOL RESOURCES TO OBTAIN A PREDICTED INCREMENT OF ACHIEVEMENT IF THE GIVEN GROUP WERE TO HAVE THE SAME RESOURCES AS THE BASELINE GROUP. THIS IS THE DIFFERENCE IN EQUALITY BETWEEN THE TWO GROUPS. (AW)

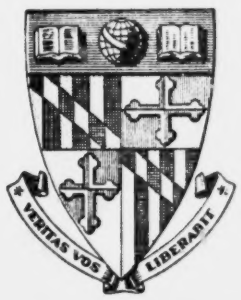
SP 001414

EDO15893

JAN 17 1968

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.



THE JOHNS HOPKINS UNIVERSITY
THE CENTER FOR THE STUDY OF SOCIAL ORGANIZATION OF SCHOOLS

Equality of Educational Opportunity, Reconsidered

James S. Coleman

Equality of Educational Opportunity, Reconsidered

James S. Coleman

The question I want to pose in this paper, together with some steps toward an answer, is how to measure the equality, or perhaps better, the degree of inequality of educational opportunity for specific subgroups in a society - whether it be racial or ethnic groups, social class groups, regional groups, religious groups, or something still different.

I would like to proceed according to several ground rules. The first of these ground rules is that I will not take the survey of Equality of Educational Opportunity either as a target to attack, or as a bastion to defend. The uses to which I shall put it, in the first section of this paper, will be two: first, to establish the context which aids the definition of the present problem, and second, to provide information that narrows this problem. For I will argue, first, that the very definition of the problem is itself not straightforward, and requires careful consideration.

The concept of equality of educational opportunity

If one reviews the concept of educational opportunity in the history of public education, as I have done recently for the United States and England, he sees one idea that dominates from the outset. This is the general idea that educational opportunity is provided by a community through the provision of facilities with free and open access for all.

The idea of equality of opportunity is a relatively new concept in England and Europe, though it existed from the outset in the U.S. and Canada.

This idea of equality of opportunity would seem to derive in a straightforward way from the concept of educational opportunity itself: equality of educational opportunity exists when the community provides the same resources, the same facilities, for all children. So long as residential distributions are such as to allow a single common school for all social classes, as in small towns and rural areas, then this idea of equality of educational opportunity is not difficult to implement. The resources are alike for all children within the locality, since all are exposed to exactly the same resources. However, if residential concentrations are larger than the smallest towns, then there are several schools in a locality, and new questions immediately arise. (I will not deal with the cases in which, even in the most sparsely populated areas, there was intentional inequality of opportunity, on a social class basis in Europe at least until World War II, and on a racial basis in the United States, through the use of parallel school systems for different classes or different races.) Questions about the distribution of resources among different schools arise, questions about the concentration of best teachers in certain schools - and even questions about the educational resources provided by classmates, which might make the experience of a child in a lower class school quite different from that of a child in a middle class school - even if all other things about the school were alike.

Thus one general concept of equality of educational opportunity would appear to derive quite directly from the initial idea of educational opportunity itself - the idea that opportunity consisted of free and open access to the same school resources for all children. The question of equality is the question of

whether in fact there <u>is</u> such equality of resources.

A great deal of attention has been given to this conception of equality in past years: studies of teachers which examine the distribution of teachers between schools with middle class students and those with lower class students; studies that compare the allocation of physical plant resources in middle-class neighborhoods and in lower class neighborhoods, partly through examining both inequities due to school system boundaries and local taxation, and also those within systems.

Two of the several approaches used in the recent Office of Education survey of Equality of Educational Opportunity were based on this general orientation. The first of these was the most straightforward, and measured equality of opportunity in terms of equality of the distribution of school resources within a county or metropolitan area. Thus inequality of opportunity was measured by the usual measures of school <u>quality</u> used by school administrators: expenditure per pupil on teaching, teacher preparation, teacher test performance, pupil-teacher ratio, age of building, size of library, and so on - including as well certain inputs to a child's educational experience not generally recognized as measures of school quality, such as the educational backgrounds of fellow-students. By use of this approach, it is possible to show a vector of differences or inequalities, based on the comparisons of the two resource vectors in schools attended by the average Negro and the average white in a given county or a given region.

However, it required a second approach to reduce this vector of differences to some meaningful measure of inequality. This second approach was one designed

to provide a weight to each of the quantities in the vector - a weight determined by an estimate of the effect of this resource upon educational achievement. This involved a radical departure from the idea of school quality ordinarily used - a departure from the definition of school quality by resources that had apparent face validity, to the definition of school quality by the existence of resources effective for achievement. This would allow a measure, then, if the degree of inequality of educational opportunity, as the increment in achievement that could be expected to occur if the input resources for schools attended by the average Negro were brought to the level of those attended by the average white.

Given this second, more sophisticated approach to equality of opportunity, the problem reduced to one of obtaining some estimate of the effect of each of these school resources upon achievement. Because of the time limitation of the survey, this was done through a cross-sectional survey, using multiple regression methods in an attempt to estimate the effects of each of these school resource characteristics. With a greater period of research time, it would have been possible to measure effects by examining changes in the level of achievement - an approach with fewer statistical problems, though with still a great many. However, the important point here is that the analysis of effects of school factors was merely to provide weights to the different school factors, thus allowing a measure of inequality in the effects of schooling, rather than merely a set of measures of inequality in input resources.

Now let us return to the initial idea of educational opportunity, which appeared to lead directly in the way indicated to the concept of equality of

opportunity described above. Does it in fact lead so directly to this concept? Note that the general principle is that inequality of educational opportunity arises through differential resources made available to Negroes and whites. But if we examine more carefully the idea of educational opportunity as provided by schools, this conclusion appears less obvious. For suppose we carry out a mental experiment in which Negroes and whites were subject to precisely the same school resources, for example, in a single school in a single town, with a single school class at each grade level. One might be prepared to say, on the basis of the idea of equality of educational opportunity described above, that this situation would provide such equality. But suppose, in this mental experiment, that the school met for only one hour each week. Would we still be prepared to assert that it provided equality of educational opportunity? I think not, for the education received by these children would be largely that received outside school. Those children from families with strong educational resources in the home or strong economic resources would supplement these minimal activities of the school, so that children's education would be largely determined by the differential educational resources provided by their families.

From this perspective, equality of educational opportunity depends not merely on the idea of equality in the distribution of school resources, but on the intensity of the effects of these resources. This concept takes into account the fact that outside school, and before school, children have very unequal educational resources, so that equality of opportunity is provided by making the resources provided by school not only equal, but quite powerful in their effects. In contrast, the previous definition, which focussed on

equality in distribution of resources, implicitly ignores these outside educational resources, and assumes that opportunity in education derives wholly from a child's experiences within school.

Following the second definition, one may conceive of two sets of educational resources impinging on school children: one set, set A, available to and operative for all children alike, and a second set, set B, available only to a subgroup within the total population. The first definition of equality of educational opportunity focusses on the question of what proportion of school resources is in the set A, and what proportion in set B. The second definition asks a different question: assuming that out-of-school resources are largely in set B, and in-school resources are largely in set A, it asks about the relative size of set A and set B, that is, the intensity of common educational resources relative to the intensity of differential educational resources.

If one then combines these two criteria of equality of educational opportunity, there are two distinct dimensions of which the concept is composed: first, equality in the distribution of school resources; and second, intensity of effect of the school resources relative to the intensity of outside educational resources. If a system is high on both these dimensions it approaches equality of educational opportunity. But inequality of opportunity may be of two quite different sorts. It may occur through the existence of equal resources which have little effect, so that resulting opportunity depends largely on the differences in external educational resources held by these children. Or it may occur through the differential distribution of resources,

which through their weak or strong effects reinforce the differential resources which exist outside school, prior to and during school years.

Some statistical results from the report Equality of Educational Opportunity give some illustrative information about these different kinds of inequality, by showing the achievement of four different subgroups of students in the United States, divided according to regional and racial criteria, in grades 1, 3, 6, 9, and 12. The educational resources in the home and neighborhood before grade 1 being different, each of these four lines begins, at grade 1, at a different point on the graph. If we assume that the results of these different resources have produced an equilibrium in the difference between the mean achievement of these population subgroups, and that these before-school differences remain the same after age 6, then in the absence of school, the differences at each grade level would be identical to those at grade 1. There would be four parallel horizontal lines showing the relative position of each group from grade 1 through 12. In the presence of school resources that were distributed in exactly the same ratio for the four groups as are out-of-school resources, the four lines would still remain parallel. Although children in each group would be learning more than in the absence of school, the relative levels of achievement would remain the same, because the relation between the amounts of resources for each remained the same. In the presence of school resources that were equal for all population groups and intensive in their effects, the lines should converge, because the distribution of effective educational resources after grade 1 was nearer equality than before grade 1. Finally, in the presence of school resources that showed even greater inequality

than the out-of-school resources, the lines should diverge from grade 1 to grade 12.

The assumptions on which these conclusions are based should be made clear. They are:

(a) The starting-points of achievement at grade 1, averages for each population group, represent an equilibrium position resulting from the environmental resources to which each group is subject, so that the continued application of the same ratio of resources would maintain the same relative positions;

(b) The out-of-school educational resources after grade 1 have the same ratio for these population groups as those before grade 1;

(c) The distribution of potential in each group, apart from environmental resources, is approximately the same.

This third assumption is important, because of the general point that a more intense learning environment might have the effect of creating greater diversity of achievement between children with greater and lesser potential. But so long as potential is distributed equally among the different population groups, this increase in diversity due to intensive and equally distributed learning experiences would not mean a divergence between the population groups, but rather the reverse. Although the overall variance in achievement would increase through time, the population means would converge - simply because achievement which was, at the beginning of school, related to the educational resources available in that population group, would come to be related instead to the child's potential.

If, of course, an intense learning environment that was equal for all did not increase the variance in achievement between children with different potentials, one need not assume that potentials are distributed alike in each

of these populations. The difficulty of deciding, in general, whether such intensive and equal learning environments have a converging or diverging effect in a population that has different potentials lies in our inability to determine what is such a learning environment, and our uncertainty about what are differences in potential.

With this general idea of how different kinds and amounts of inequality would manifest themselves in the achievement of subgroups that start grade 1 at different points, it is useful to examine the data referred to above. Figure 1 shows verbal achievement at grades 1, 3, 6, 9, and 12 for whites and Negroes in the urban Northeast and the rural Southeast. First comparing the whites and Negroes in the urban Northeast, the lines representing group averages remain parallel throughout the period of school. This indicates, under the assumptions stated earlier, that either (1) the educational resources within schools, though equally distributed for Negroes and whites in this region, are ineffective, and the unequal out-of-school resources determine the relative levels of achievement, or (2) the educational resources in school, although effective, are distributed in the same ratio as are the out-of-school resources for these two groups.

Comparing the whites in the two regions shows lines which begin some distance apart, but diverge somewhat over the years of school. This comparison indicates that the educational resources of schools do have some effect, but that they are distributed even less equally between the schools of the urban Northeast whites and the schools of the rural South whites than are the resources in the home. A more striking comparison in this regard is between Negroes in these two locations. The starting-points at grade 1 are nearly alike, indicating

very similar resources in the two sets of homes; but the lines diverge very sharply, so that by grade 12, the Negroes in the rural South are far below the Negroes in the urban North. This indicates a great inequality of resources between the schools of the urban Northeast Negroes and the rural South Negroes. A similar inequality occurs in school resources, greater than the inequality of family educational resources before school, between the schools attended by whites in the rural South, and those attended by Negroes in the same region.

There is another statistic from this survey which is relevant to the discussion. This is the proportion of the total variance in achievement, for a given population group that lies between schools, at each grade level. At the beginning of school, this between-school variance represents the differences, within that population group, in the starting-points of student bodies in different schools. If the school educational resources are (a) more alike between schools than are the out-of-school educational resources; and (b) effective, then this between-school variance should decrease over the years of school. If the school educational resources are either distributed in about the same ratio as the out-of-school educational resources, or are ineffective, the between-school variance should remain about the same. Table 1 shows that the latter is the case; that the proportion of between-school variance remains about the same from grade 1 to 12, with a slight decline.

Initially, the research analysts expected that effectiveness of schools would show up through an increase in the between-school variance over the years of school. The general idea was that differences in school quality would create, over the years of school, increasing divergence between the average achievement

in different student bodies. But this was predicated on two assumptions, neither of which held: that the initial between-school variance would be negligible, so that school effects would all show up through an increase in between-school variance; and that if the first assumption did not hold, then the out-of-school resource differences which created the initial between-school variance would be unrelated to the variations in school resources, which would create subsequent between-school variance. If this latter assumption had been true, then the resulting effects should have shown up first as a decrease in between-school variances, as differences in student starting-points were neutralized, and then by an increase in between-school variance, as the different school qualities brought divergence in their student-body achievements.

The results, of course, indicate that even within each population group, either the school resources are distributed about like the out-of-school resources, so as to maintain the between-school variance, or are ineffective, so as to leave the between-school variances like they are at the start of grade 1.

The measurement of equality of opportunity

The discussion above indicates that equality of educational opportunity among different population subgroups depends on two distinct variables, the distribution of effective school resources, and the intensity or effectiveness of these resources, relative to the unequally distributed out-of-school resources. I will describe briefly the method used in the survey to assess

the inequalities in distribution of effective school resources, and follow this with a discussion of how it might be better done.

The orientation in the survey required three steps: (1) for each population groups, to measure the list of resources that might be effective for achievement; (2) then, through regression analysis, to estimate the effectiveness of each of these resources for a given group which experienced fewer resources than a given baseline group, such as whites in the same region; and finally (3) using these measures of effectiveness, the regression weights for the different school resources, to obtain a predicted increment of achievement if the given group were to have the same resources as the baseline group. This predicted increment in achievement thus constitutes a measure of the effective inequality in distribution of educational resources for the given group, relative to the baseline group.

In fact, the survey never quite got to the last of these steps, in part because the estimates of effects of school resources showed these effects to be rather small, but in larger part because of a lack of time to carry out this step. Instead, the distribution of input resources, and some crude estimates of effects of various of these resources, the results of steps 1 and 2, were reported.

There has been some discussion and controversy over the methods used in estimating the effects of different school resources. If the study were to be carried out again, however, I would propose that the same method be used. If it were possible to extend the data-collection over a longer period of time,

with two points of data-collection, then I would favor carrying out a regression analysis in which the increment of achievement from time of entry into the school is the dependent variable.* This method for the estimate of effects of various school resources would be superior to that based on a single cross-sectional analysis - although such a design is not without its statistical pitfalls.

In the process of obtaining the measure of this first dimension, that is the differences in the distribution of effective resources, the essential elements for the measurement of the second, that is, the intensity of effect, have been obtained as well. It is useful to view the matter as follows: to obtain the measure described above, of distribution of effective resources, one examines the differential achievement due to school factors for children from similar family backgrounds. But to find the intensity of effect of school resources, one does the opposite: examine the differential achievement due to family background for children from the same or similar schools. If the intensity of effect of school resources wholly outweighed that of family and other out-of-school factors, then children exposed to the same school factors would all be achieving at the same level. If the intensity of effect of school resources was zero, then children exposed to the same school factors would be achieving no more alike than would be expected by chance. Yet the matter is confounded by the fact that entering student bodies are already somewhat homogeneous in achievement, as Table 1 showed.

---

*It might appear that one could merely take the increment in achievement between two years, say grades 5 and 6, as a dependent variable. However, this creates statistical problems. If the school were equally effective in the grades before grade 5 and in grade 5, then both the achievement scores at grade 5 and grade 6 would reflect this effectiveness, so the difference in scores should not reflect it. The difference, greater or less than expected given the child's background, would reflect only the differential effectiveness of the school before grade 5 and in grade 5.

Because of this selection bias in student bodies, the matter must be examined by comparing cohorts which have been in school differing periods of time: first we find, at grade 1, that combination of out-of-school factors (principally family background) which best predict initial performance at the entry to school. Then we examine, for successive grades in school, the relation of these family background factors to achievement, for children subject to the same school resources, that is, by controlling on the child's school. The more rapidly this relation between background and achievement declines, for children subject to the same school resources, the more intense the effects of school factors. This does not necessarily mean that over the whole population of students, the relation between background and achievement will necessarily decline over the school years, for the differential distribution of these resources over schools could act even to strengthen the relationship. What it does mean, however, is that if school resources are distributed independently of student background resources, the relation of achievement to background will decline over the school years.

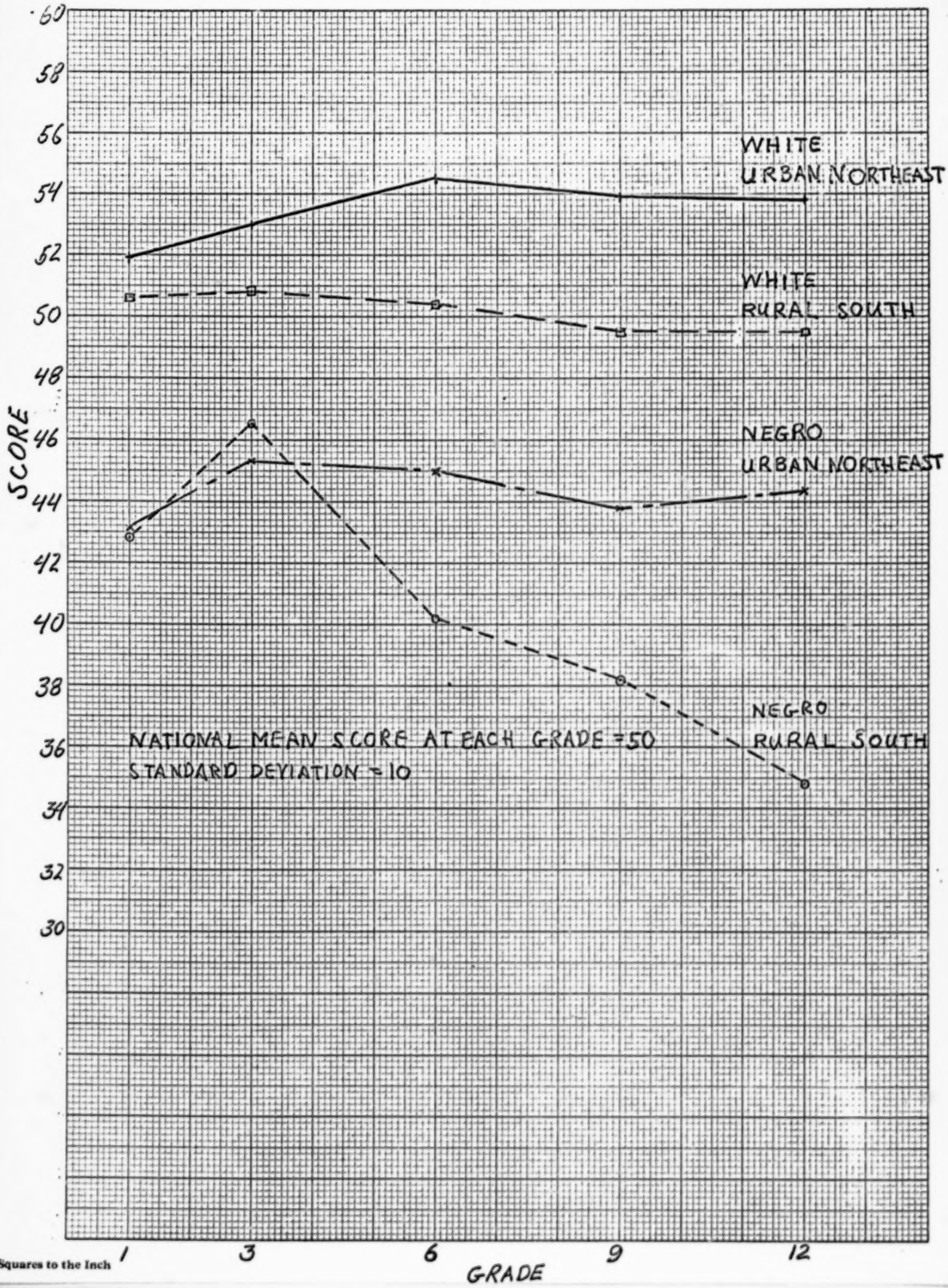
Thus it seems clear that the appropriate measure for studying equality of educational opportunity lies in both dimensions: in the distribution of school resources, and the intensity of their effect. Only if their distribution was fully equal, and the intensity of their effect was infinitely great relative to the divergent out-of-school factors, would there be complete equality of opportunity. Since the latter cannot be the case, then it can hardly be even appropriate to speak of "equality of educational opportunity," but rather to speak instead of the amount of inequality. In a system with equal resource distribution, but with less than infinite intensity of effects, there remains

a degree of inequality - an inequality of opportunity not arising from the school system, but arising from outside and not overcome by the school system.

All this becomes more fully understandable when we take a somewhat broader perspective, examining the role of an educational system in society. In a society without a formal educational system, the inequalities of position, income, power, and other resources among different households are directly transmitted to the next generation. The increasing importance of the educational system has been in a movement away from hereditary inequalities of opportunity, toward an open system in which each child can enter adult life with resources independent of those in the family into which he was born. Consequently, this movement toward equality of opportunity depends both on the distribution of educational resources and the intensity of effect of these resources. It is only insofar as both the distribution and intensity of the resources act to free a child's opportunity from the accident of birth into a given family that a society can come near to the achievement of equality of opportunity.

TABLE 1

	GRADES				
	12	9	6	3	1
Negro South	22.5	20.1	22.7	34.9	23.2
Negro North	10.9	12.8	13.9	19.5	10.6
White South	10.1	9.1	11.1	17.7	18.6
White North	7.8	8.7	10.3	11.4	11.1



20 Squares to the Inch